What is claimed is:

1. An electromagnetic transducer laminate, comprising:

a laminate structure including a first ferromagnetic layer having a pair of facing surfaces, a non-magnetic layer being disposed adjacent to one of the surfaces of the first ferromagnetic layer, a second ferromagnetic layer being disposed adjacent to the non-magnetic layer, and an antiferromagnetic layer being disposed to adjacent to the second ferromagnetic layer;

a non-magnetic exchange coupling layer being disposed adjacent to the other surface of the first ferromagnetic layer; and

a semi-hard magnetic layer being disposed adjacent to the non-magnetic exchange coupling layer, and being exchange-coupled to the first ferromagnetic layer through the non-magnetic exchange coupling layer.

2. An electromagnetic transducer laminate according to claim 1, wherein the semi-hard magnetic layer functions as a first magnetic domain control layer for controlling a magnetic domain of the first ferromagnetic layer.

3. An electromagnetic transducer laminate according to claim 1, wherein the width of the semi-hard magnetic layer is equal to or larger than the width of the first ferromagnetic layer.

4. An electromagnetic transducer laminate according to claim 1, wherein the second ferromagnetic layer has a laminate structure including two magnetization directions opposite to each other.

5. An electromagnetic transducer laminate according to claim 1, wherein the non-magnetic exchange coupling layer includes a reflective layer for reflecting conduction electrons.

6. An electromagnetic transducer laminate according to claim 1, wherein the non-magnetic exchange coupling layer includes an electrically conductive layer having a higher conductivity than the first ferromagnetic layer.

7. An electromagnetic transducer laminate, comprising:

a spin valve structure including a free layer, a non-magnetic layer being disposed adjacent to the free layer, a pinned layer being disposed so as to face the free layer with the non-magnetic layer in between, and having a magnetization direction fixed in a predetermined direction, and a pinning layer being disposed adjacent to the pinned layer, and being provided for fixing the magnetization direction of the pinned layer;

a non-magnetic exchange coupling layer being disposed adjacent to the free layer on a side opposite to a side where the non-magnetic layer is disposed; and

a magnetic domain control layer being disposed so as to face the free layer with the non-magnetic exchange coupling layer in between, and being exchange-coupled to the free layer so as to control a magnetic domain of the free layer.

8. An electromagnetic transducer laminate, comprising:

a laminate structure including a first ferromagnetic layer having a pair of facing surfaces, a tunnel insulating layer being disposed adjacent to one of the surfaces of the first ferromagnetic layer, and being capable of tunneling conduction electrons therethrough, a second ferromagnetic layer being disposed adjacent to the tunnel insulating layer, and an antiferromagnetic layer being disposed adjacent to the second ferromagnetic layer;

a non-magnetic exchange coupling layer being disposed adjacent to the other surface of the first ferromagnetic layer; and

a semi-hard magnetic layer being disposed adjacent to the non-magnetic exchange coupling layer, and being exchange-coupled to the first ferromagnetic layer through the non-magnetic exchange coupling layer.

9. An electromagnetic transducer, comprising:

an electromagnetic transducer laminate according to claim 1; and

a lead layer for supplying a current to the electromagnetic transducer laminate.

10. An electromagnetic transducer, comprising:

an electromagnetic transducer laminate according to claim 7; and a lead layer for supplying a current to the electromagnetic transducer laminate.

11. An electromagnetic transducer, comprising:

an electromagnetic transducer laminate according to claim 8; and a lead layer for supplying a current to the electromagnetic transducer laminate.

12. An electromagnetic transducer according to claim 9, further comprising:

a hard magnetic layer being disposed adjacent to a side of at least a semi-hard magnetic layer in the electromagnetic transducer laminate, and functioning as a second magnetic domain control layer for controlling a magnetic domain of a first ferromagnetic layer in the electromagnetic transducer laminate.

13. An electromagnetic transducer according to claim 10, further comprising:

a hard magnetic layer being disposed adjacent to a side of at least a semi-hard magnetic layer in the electromagnetic transducer laminate, and functioning as a second magnetic domain control layer for controlling a

magnetic domain of a first ferromagnetic layer in the electromagnetic transducer laminate.

14. An electromagnetic transducer according to claim 11, further comprising:

a hard magnetic layer being disposed adjacent to a side of at least a semi-hard magnetic layer in the electromagnetic transducer laminate, and functioning as a second magnetic domain control layer for controlling a magnetic domain of a first ferromagnetic layer in the electromagnetic transducer laminate.

15. A thin film magnetic head, comprising:

an electromagnetic transducer according to claim 9,

wherein the thin film magnetic head magnetically reproduces information.

16. A thin film magnetic head, comprising:

an electromagnetic transducer according to claim 10,

wherein the thin film magnetic head magnetically reproduces information.

17. A thin film magnetic head, comprising:

an electromagnetic transducer according to claim 11,

wherein the thin film magnetic head magnetically reproduces information.

18. A magnetic head assembly, comprising:

a head slider having a thin film magnetic head according to claim 15 formed thereon; and

a slider supporting mechanism supporting the slider head.

19. A magnetic head assembly, comprising:

a head slider having a thin film magnetic head according to claim 16 formed thereon; and

a slider supporting mechanism supporting the slider head.

20. A magnetic head assembly, comprising:

a head slider having a thin film magnetic head according to claim 17 formed thereon; and

a slider supporting mechanism supporting the slider head.

21. A magnetic reproducing apparatus, comprising:

a magnetic head assembly according to claim 18; and

a recording medium where information is magnetically reproduced by using the magnetic head assembly.

22. A magnetic reproducing apparatus, comprising:

a magnetic head assembly according to claim 19; and

a recording medium where information is magnetically reproduced by using the magnetic head assembly.

23. A magnetic reproducing apparatus, comprising:

a magnetic head assembly according to claim 20; and

a recording medium where information is magnetically reproduced by using the magnetic head assembly.

24. A method of manufacturing an electromagnetic transducer, the electromagnetic transducer comprising an electromagnetic transducer laminate according to claim 1 and a lead layer for supplying a current to the electromagnetic transducer laminate,

wherein a method of manufacturing the electromagnetic transducer laminate comprises the steps of:

forming a non-magnetic exchange coupling layer so as to be disposed adjacent to one surface of a first ferromagnetic layer, and

forming a semi-hard magnetic layer so as to be disposed adjacent to the non-magnetic exchange coupling layer, thereby being exchange-coupled between the semi-hard magnetic layer and the first ferromagnetic layer through the non-magnetic exchange coupling layer.

25. A method of manufacturing an electromagnetic transducer, the electromagnetic transducer comprising an electromagnetic transducer laminate according to claim 7 and a lead layer for supplying a current to the electromagnetic transducer laminate,

wherein a method of manufacturing the electromagnetic transducer laminate comprises the steps of:

forming a non-magnetic exchange coupling layer so as to be disposed adjacent to one surface of a first ferromagnetic layer, and

forming a semi-hard magnetic layer so as to be disposed adjacent to the non-magnetic exchange coupling layer, thereby being exchange-coupled between the semi-hard magnetic layer and the first ferromagnetic layer through the non-magnetic exchange coupling layer.

26. A method of manufacturing an electromagnetic transducer, the electromagnetic transducer comprising an electromagnetic transducer laminate according to claim 8 and a lead layer for supplying a current to the electromagnetic transducer laminate,

wherein a method of manufacturing the electromagnetic transducer laminate comprises the steps of:

forming a non-magnetic exchange coupling layer so as to be disposed adjacent to one surface of a first ferromagnetic layer, and

forming a semi-hard magnetic layer so as to be disposed adjacent to the non-magnetic exchange coupling layer, thereby being exchange-coupled

between the semi-hard magnetic layer and the first ferromagnetic layer through the non-magnetic exchange coupling layer.